

accommodating a mask, on which a protection member is provided via a frame, in a closed chamber having at least one of a first space including an optical path of exposure light and a second space adjacent to said first space;

replacing a gas in said closed chamber with a predetermined gas having low absorption characteristic of said exposure light with regard to a material which absorbs said exposure light;

replacing a gas in a predetermined space surrounded by said protection member, said mask, and said frame with said predetermined gas via a hole formed in said frame according to replacing the gas in said closed chamber; and

irradiating said exposure light onto said mask after replacing said gas in said predetermined space with said predetermined gas, and transferring an image of a pattern of said mask onto a substrate.

21. (Amended) An exposure method according to claim 19, wherein an exhaust amount of said gas from said closed chamber is adjusted so that deformation of said protection member is within a predetermined range.

24. (Amended) An exposure method comprising:  
accommodating a mask on which a protection member is provided via a frame in a closed chamber having at least one of a first space including an optical path of exposure light and a second space adjacent to said first space;

replacing a gas in a predetermined space surrounded by said protection member, said mask, and said frame via a hole formed in said frame with a predetermined gas having low absorption characteristic of said exposure light with regard to a material which absorbs said exposure light in said closed chamber; and

after said gas in said predetermined space is replaced with said predetermined gas, irradiating said exposure light onto said mask and transferring an image of a pattern of said mask onto a substrate.

25. (Amended) An exposure method according to claim 24, wherein a plurality of said holes is formed in said frame, and said gas in said predetermined space is replaced with said predetermined gas via said plurality of said holes.

26. (Amended) An exposure apparatus comprising:

a closed chamber which accommodates a mask on which a protection member is provided via a frame, said closed chamber having at least one of a first space including an optical path of exposure light and a second space adjacent to said first space;

a gas replacement apparatus which is provided in said closed chamber and replaces a gas in said closed chamber with a predetermined gas having low absorption characteristic of said exposure light with regard to a material which absorbs said exposure light; and

a deformation measuring device which is connected to said gas replacement apparatus and measures deformation of said protection member during replacement of said gas in said closed chamber with said predetermined gas.

27. (Amended) An exposure apparatus according to claim 26, wherein said gas replacement apparatus comprises:

an exhaust device which is connected to said closed chamber and exhausts a gas in said closed chamber; and

a control device which is connected to said deformation measuring device and controls exhausting of said gas in said closed chamber by said exhaust device based on a result of measurement so that said deformation is within a predetermined range.

28. (Amended) An exposure apparatus according to claim 27, wherein said gas replacement apparatus comprises a gas supply device which is connected to said closed chamber and supplies said predetermined gas into said closed chamber; and

said control device controls supply of said predetermined gas into said closed chamber by said gas supply device so that said deformation is within a predetermined range.

29. (Amended) An exposure apparatus comprising:

a closed chamber which accommodates a mask on which a protection member is provided via a frame, said closed chamber having at least one of a first space including an optical path of exposure light and a second space adjacent to said first space;

a gas replacement apparatus which is provided in said closed chamber and replaces a gas in said closed chamber with a predetermined gas having low absorption characteristic of said exposure light with regard to a material which absorbs said exposure light;

a pressure measuring device which is connected to said closed chamber and measures a pressure in said closed chamber; and

a control device which is connected to said pressure measuring device and controls said gas replacement apparatus based on a result of measurement from said pressure measuring device so that a deformation of said protection member is within a predetermined range during replacement of said gas in said closed chamber with said predetermined gas.

30. (Amended) An exposure apparatus according to claim 29, wherein said gas replacement apparatus comprises an exhaust device which is connected to said closed chamber and exhausts a gas in said closed chamber; and

said control device controls exhausting of said gas in said closed chamber by said exhaust device so that said deformation of said protection member is within a predetermined range.

31. (Amended) An exposure apparatus according to claim 30, wherein said gas replacement apparatus comprises a gas supply device which is connected to said closed chamber and supplies said predetermined gas into said closed chamber; and

said control device controls supply of said predetermined gas into said closed chamber by said gas supply device so that said deformation is within a predetermined range.

32. (Amended) An exposure apparatus comprising:

a closed chamber which accommodates a mask on which a protection member is provided via a frame, said closed chamber having at least one of a first space including an optical path of exposure light and a second space adjacent to said first space;

a gas replacement apparatus which is connected to at least one of a plurality of holes formed in said frame, and replaces a gas in a predetermined space surrounded by said protection member, said mask, and said frame with a predetermined gas having low absorption characteristic of said exposure light with regard to material which absorbs said exposure light.

33. (Amended) An exposure apparatus according to claim 32, wherein said gas replacement apparatus is disposed in a space adjacent to a space including said optical path of said exposure light.

34. (Amended) An exposure apparatus according to claim 33, wherein said gas replacement apparatus comprises a gas supply device which is connected to at least one of said plurality of holes and supplies said predetermined gas into said predetermined space, and an exhaust device which is connected to a hole which is different from the hole connected to said gas supply device and supplies said gas in said predetermined space thereto.

35. (Amended) An exposure apparatus according to claim 34, comprising a deformation measuring device which is connected to said gas replacement apparatus and

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cont'd measures deformation of said protection member during replacement of said gas in said predetermined space with said predetermined gas.

Please add new claims 36-45 as follows:

--36. An exposure method according to claim 19, wherein a plurality of holes is formed in said frame, and said gas in said predetermined space is replaced with said predetermined gas via said plurality of hole.--

--37. An exposure method according to claim 19, wherein deformation of said protection member is monitored during replacement of said gas in said predetermined space with said predetermined gas.--

--38. An exposure method according to claim 37, wherein a supply amount of said predetermined gas to be supplied into said closed chamber and an exhaust amount of gas in said closed chamber are controlled based on a deformation amount of said protection member which has been monitored.--

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--39. An exposure method according to claim 25, wherein a gas supply device which supplies said predetermined gas is connected to one of said plurality of holes, and an exhaust device which exhausts a gas in said predetermined space is connected to a hole which is different from the hole connected to said gas supply device.--

--40. An exposure method according to claim 39, wherein deformation of said protection member is monitored during replacement of said gas in said predetermined space with said predetermined gas.--

--41. An exposure method according to claim 40, wherein based on a deformation amount of said protection member which has been monitored, said gas supply device and said exhaust device are controlled, and a supply amount of said predetermined gas which is to be supplied into said predetermined space and an exhaust amount of a gas to be exhausted from said predetermined space are controlled.--

--42. An exposure apparatus according to claim 26, wherein said gas replacement apparatus comprises:

an exhaust device which is connected to said closed chamber and exhausts a gas in said closed chamber;

a gas supply device which is connected to said closed chamber and supplies said predetermined gas into said closed chamber; and

a control device which is connected to said deformation measuring apparatus, controls exhaust of a gas of said closed chamber by said exhaust device and controls supply of said predetermined gas into said closed chamber by said gas supply device based on a result of a measurement so that said deformation is within a predetermined range.--

--43. An exposure apparatus according to claim 29, wherein said gas replacement apparatus comprises:

an exhaust device which is connected to said closed chamber and exhausts a gas in said closed chamber;

a gas supply device which is connected to said closed chamber and supplies said predetermined gas into said closed chamber; and

a control device which is connected to said deformation measuring apparatus, controls exhaust of a gas in said closed chamber by said exhaust device and controls supply of said predetermined gas into said closed chamber by said gas supply device based on a result of measurement so that said deformation is within a predetermined range.--

--44. An exposure apparatus according to claim 43, comprising a storage apparatus which is connected to said control device, stores a pressure change occurring inside said closed chamber and stores a deformation of said protection member corresponding to said pressure change, wherein